

IV.

DESCRIPTION OF FIFTY NEW AUSTRALIAN
PLANTS, CHIEFLY FROM THE COLONY
OF VICTORIA.

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LAI D ON THE TABLE, 6TH NOVEMBER, 1854.

The following brief descriptive notes on the botany of this country, have been selected partly from manuscripts elaborated for a Flora of this colony, and partly from unpublished observations on the plants of Australia in general.

In a country, which but a generation ago was an unknown wilderness—the close acquaintance with its productions can be but gradually advanced, and therefore, many a day must yet elapse before a work on its vegetation may be closed, as approaching to that state of perfection which science demands at the present day. It was, however, deemed desirable, that a preliminary account of the lately discovered indigenous plants should be prepared at an earlier period, and the series of them is commenced in the following pages. Still the treatment of so many scientific questions of higher practical importance before this Institute, which favours all branches of science equally, rendered it imperative to draw this paper in as narrow limits as clearness would permit, excluding from it all extensive details, which would more particularly belong to a botanic periodical.

Yet the diagnoses offered on this occasion, although unsupported by ample descriptions, will prove to be sufficient to recognize by them under the requisite literary aid, some of the most characteristic peculiarities of our Flora; and it will be an agreeable duty to the author to continue this series, should it answer the purpose of promoting botanical research here, and diffusing abroad some additional knowledge of the manifold singular productions of our Australian home.

PITTOSPOREÆ.

1. *Billardiera cymosa*.

Branches climbing; leaves lanceolate, flat, acute, entire, above smooth, beneath scantily hairy, on the margin ciliate, at length totally glabrescent; cymes terminal, solitary or paniculate; sepals long-acuminate, somewhat hairy, densely ciliated, at least three times shorter than the corolla; berries cylindrico-oblong, silky or glabrous.

In the Mallee Scrub towards the Murray River, near Guichen Bay; on Spencer's and St. Vincent's Gulf, near Flinder's Ranges; and in Kangaroo Island.

Flowers yellow, or nearly purple or blueish, and in all intermediate shades.

It is a true *Billardiera* with the inflorescence of a *Pronaya*.

ZYGOPHYLLÆ.

2. *Zygophyllum glaucum*.

(*Sect. Roepera.*)

Herbaceous, ascending or erect, glabrous; leaflets twin, fleshy, glaucous, obliquely ovate, spathulate, perfectly entire, at least three times longer than the margined petiole; peduncle of the fruit drooping, equal in length with the petiole; sepals from a broad base lanceolate, acuminate; capsule

acute-quadrangular, truncate at the top, slightly tapering into the rounded base, its valves net-veined, dimidiate-cordate or oval, wingless.

In the Desert along the Murray, Wimmera and Avoca; on St. Vincent's Gulf, Spencer's Gulf, and in various other places in South Australia.

DIOSMEÆ.

3. *Corræa decumbens*.

Branches decumbent or ascending; leaves oblong, blunt, above nearly glabrous, beneath clothed with a white or rusty brown toment; flowers solitary; calyx eight-cleft, four of the segments triangular-lanceolate, subulate, the alternating ones twice longer filiform; corolla red, tubulose, with connivent segments; stamens long-exserted; style glabrous; stigma four-cleft.

On the cataracts towards Mount Lofty, and on the banks of the Onkaparinga in South Australia.

A plant not less beautiful than remarkable. The singular form of the calyx will at once offer a mark of distinction from any other of its brilliant congeners.

4. *Phebalium sediflorum*.

Erect; branches scaly and covered with resinous glands; leaves linear, cuneate, truncate or retuse, on the margin from glandular protuberances repand, above smooth, beneath like the terminal generally six-flowered umbels silver-scaly; petals ovate, acute, golden-yellow; filaments not exserted; anthers fixed at the base, with a terminal gland; stigma undivided.

In the Mallee Scrub, at the Murray River, Lake Lalbert, and Lake Tyrrell.

This singular plant exhibits some affinity to *Phebalium glandulosum*, which, however, is a mountainous species. Its medicinal virtue ought to be tried.

5. *Phebalium podocarpoides*.

Leaves small, crowded, smooth, coriaceous, narrow-oblong, blunt, with entire slightly recurved margin, above even and shining, below silver-scaly; umbels terminal, five to ten-flowered, sessile, as well as the twigs clothed with a scaly, glandular tegument; calyx repand-denticulate, four-times shorter than the ovate-lanceolate petals; the exerted filaments and the style capillary, glabrous; stigma undivided; carpels apiculate; seeds streaked.

On the rocky alpine summit of Mount Buller and the Mitta Mitta Ranges.

6. *Phebalium asteriscophorum*.

Leaves cuneate-oblong, blunt, above covered with dispersed starry hair, beneath as well as branches and pedicels starry-tomentose; umbels generally three-flowered, axillary or terminal; calyx minute; stamens ten, not exerted; anthers fixed at the base, with a very minute gland; germen starry-tomentellous; style filiform; stigma undivided; seeds smooth.

On stony declivities of Mount Disappointment (Dallachi), and on the gravelly banks of the Buffalo Creek.

A beautiful little bush, resembling *Asterolasia* and *Hermannia*, and nearest in relation to Hooker's *Pheb. grandiflorum* from West Australia.

7. *Phebalium ozothamnoides*.

Erect; branches scaly; leaves obovate-cuneate, often retuse, above glabrescent, beneath covered with a starry silvery indument, their margin entire, revolute; umbels terminal, sessile, silver-scaly; petals ovate-lanceolate; carpels trapezoid.

On the gravelly banks of the Mitta Mitta and Livingstone River.

It received its name for some resemblance in habit with *Ozothamnus obcordatus*.

8. *Phebalium phylicifolium*.

Spreading; twigs somewhat downy; leaves crowded, coriaceous, narrow-oblong, nearly blunt, short-stalked, above glabrous, beneath often white-velvety, with entire recurved margin; umbels axillary, pedunculate, few-flowered; bracteoles bearded; carpels rhomboid-ovate, with a very short beak.

On the highest peaks of the Cobboras Mountains, and on the sources of the Mitta Mitta.

9. *Eriostemon lancifolius*.

Erect, glabrous, glaucous; branches terete, warted; leaves large, coriaceous, lanceolate, acute, flat, entire, sharp-pointed, sessile, densely glandulose; umbels axillary, on a compressed thick peduncle; sepals rounded, slightly ciliated; carpels oblique ovate, compressed, beaked.

On the stony summit of Mount McFarlan, at an elevation of nearly five thousand feet on Mount Tambo and the Upper Mitta Mitta.

10. *Boronia dentigera*.

Branches nearly terete, spreading, hirtellous; leaves thick, glabrous or pubescent, divaricate, trifoliolate; leaflets cuneate-linear, trilobulate at the summit; peduncles axillary, solitary, one to three-flowered, shorter than the leaves, bearing in the middle a pair of leafy bracteas, as well as the subulate-lanceolate sepals slightly hirtellous or pubescent; stamens all fertile with ciliated filaments; seeds asperous.

On sandhills near the La Trobe River, and in McCrae's Island. Also, near the Pendland Hills, according to Mr. Dallachi.

MYRTACEÆ.

11. *Eucalyptus cosmophylla*.

Shrubby; leaves alternate, thick—coriaceous, opaque, glaucous, ovate- or falcate-lanceolate, cuspidate-acuminate,

thinly veined, destitute of pellucid dots; peduncles short, axillary, angulate, with one—three large flowers on thick pedicels; lid hemispherico-depressed, mutic or umbonate, or conically pointed; tube of the calyx obconico-bell-shaped, with two indistinct ribs, a little longer than the lid; fruits half-ovate, not contracted at the orifice; valves of the capsule nearly inclosed.

On stony places in the Lofty and Bugle Ranges.

One of the handsomest species of this extensive genus.

12. *Eucalyptus costata*.

(Behr & Muell. Coll.)

Shrubby; leaves alternate, rigid, coriaceous, shining, ovate or narrow-lanceolate, uncinata-acuminate, thinly veined, with scanty pellucid dots; umbels axillary, on a valid compressed peduncle; flowers large with a short and thick pedicel; lid from a hemispherical base contracted into a narrow cone, with radiating ribs; tube of the calyx campanulate, slightly constricted in the middle, generally twelve-ribbed, a little longer than the lid; fruits large, nearly bell-shaped, with scarcely contracted orifice; valves of the capsule inclosed; seeds blackish without streaks.

In the Mallee Scrub, from the Murray River to Spencer's Gulf.

The nearest alliance of this species appears to with *E. cuspidata*.

13. *Eucalyptus Leucoxydon*.

Arboreous; leaves alternate, somewhat shining, narrow-lanceolate, subfalcate, tapering into a long uncinata acumen, veined and furnished with pellucid dots, umbels axillary, generally three-flowered, with a thin peduncle; lid conico-hemispherical, acuminate; tube of the calyx semiovate, somewhat longer than the lid; fruits semiovate, hardly contracted at the orifice; valves of the capsule inclosed; seeds blackish clathrate.

In grassy plains from the Avoca to St. Vincent's and Spencer's Gulf.

This is the "White Gum Tree" of the South Australian Colonists.

14. *Eucalyptus fasciculosa*.

Arborescent; leaves alternate, opaque, glaucescent, elongate-lanceolate, curved, gradually tapering into an uncinat acumen, thinly veined, destitute of pellucid dots; umbels paniculate, few-flowered; nearly hemispherical, minutely apiculate, thin and smooth: tube of the calyx clavate, obconical, angular, glandulose, contracted at the top, gradually tapering into a short pedicel, three times longer than the lid; fruits obconico-campanulate, slightly contracted at the orifice; valves of the capsule inclosed, seeds clathrate.

On barren ridges along St. Vincent's Gulf, on the Gawler River, in the Mount Lofty Ranges and Bugle Ranges, and on Encounter Bay.

15. *Eucalyptus largiflorens*.

Arboreous; leaves alternate, glaucous, opaque, oblong-lanceolate, acute, slightly oblique, thinly veined, hardly dotted; umbels pedunculate, panicled, few-flowered; flowers small, on short pedicels; lid double, thin, nearly even, hemispherical, blunt, or minutely apiculate; tube of the calyx obconical-bell-shaped, hardly angular, twice as long as the lower lid; fruits small, half-ovate, short-stalked, slightly contracted at the top; valves of the capsule inclosed.

In bushy, barren localities on the Murray, Avoca, Wimmera, and on St. Vincent's Gulf.

A small tree, with persistent grey-blackish bark.

16. *Eucalyptus Behriana*.

Fruticose; leaves alternate, coriaceous, somewhat shining, lanceolate or ovate, acute, slightly oblique, thinly veined,

dotted; umbels pedunculate, paniced, few—flowered; flowers small, nearly sessile; lid hemispherical, blunt or minutely apiculate; tube of the calyx obconical, bell-shaped, nearly twice as long as the lid; fruit half-ovate, sessile, not contracted at the top; valves of the capsule inclosed; seeds brown, streaked.

In arid plains and on stony bare hills near the Avoca, Murray, Gawler River, and in Bacchus Marsh.

17. *Eucalyptus santalifolia*.

Fruticose; leaves alternate, coriaceous, glaucescent, opaque, oblong-lanceolate, hooked-acuminate, a little oblique, thinly veined, hardly dotted; umbels axillary and terminal, pedunculate, capitate; lid depressed-conical or hemispherical; tube of the calyx obconical, bell-shaped, nearly three times longer than the lid; fruit not contracted at the top; valves of the capsule enclosed.

In the Mallee scrub on the Murray River, on St. Vincent's and Spencer's Gulfs.

18. *Eucalyptus gracilis*.

Fruticose; leaves coriaceous, alternate, shining, narrow-lanceolate, hooked-acuminate, a little oblique, thinly veined, dotted; umbels axillary and terminal pedunculate; flowers small, short stalked; lid blunt, depressed-hemispherical; tube of the calyx obconical, bell-shaped, a little broader and three times longer than the lid; fruit nearly hemispherical, not contracted at the top; valves of the capsule almost inclosed.

In the desert on the Murray River, where it forms the Mallee Scrub together with *E. dumosa*, *santalifolia* and other species.

LEGUMINOSÆ.

19. *Sesbania Australis*.

Herbaceous, erect, unarmed; leaves with from twenty to thirty pairs of oblong blunt mucronulate leaflets, which are opaque, above smooth, beneath with the branches at first slightly hairy; racemes with five to ten flowers erect; peduncles shorter than the leaves; corolla smooth, twice or three times longer than the calyx; standard variegated with black streaks and dots; pods terete-compressed, acuminate-pungent, slightly falcate, subtorulose, as long as the angular, somewhat hairy rachis of the leaves.

On the Darling River.

The only notice of the existence of *Sesbania* in this part of the globe, is given in Sir Thomas Mitchell's *Tropic. Australia*, p. 109, where a species allied to the East Indian *Sesbania aculeata* is mentioned as found on the Narran. From this remark I am led to suppose, that the plant in question differs from ours, which stands in much nearer relationship to *Sesbania picta* from New Spain.

COMPOSITÆ.

20. *Eurybia conocephala*.

(*Sect. Aglossa.*)

Leaves small, obovate, cuneate, or spatulate, sessile, on both sides as well as the branchlets from a thin grey toment velutinous, with flat entire margin; flower-heads axillary and terminal, solitary, subsessile; involucre at first oblong-cylindrical, at length obconical; scales imbricate, in several rows, rounded-blunt, towards the upper end tomentellous, on the margin ciliate, outer ones ovate, interior ones oblong; flowers all tubulose, hermaphrodite, with erect teeth of the corolla; achenes cylindrical, subangulate, glabrous; pappus biseriate, its bristles hairy, scabrous, the outer ones but little shorter.

In the desert on the Murray River, near Morunde.

A most remarkable plant, in habit not dissimilar to *E. pimeloides*, but in its characters widely distinct.

Pleuropappus.

A new genus of Angianthea.

Capitulum with two flowers, numerous, homogamous, densely aggregated into a cylindrical glomerulus. General involucre shorter than the glomerulus, pluriseriate; its outer scales leafy, linear, unequal; interior ones paleaceous, without an appendage. General receptacle simple, filiform, paleate; partial ones very short. Special involucre of the flower-head consisting of four scarious exappendiculate scales, furnished besides with three subovate bracts. Exterior scales two, sessile, folded together, with a dilated base; interior ones two, orbicular-ovate, stalked. Flowers, hermaphrodite. Corolla three to five-toothed, cylindrical, with an attenuate base. Divisions of the style at the extremity convex, dilated slightly bearded. Anthers at the base hastate. Achenes glabrous, obovate. Pappus arising out of a gland from the side of the achene, cymbiform, scarious, deciduous, fimbriate, sometimes producing one or two very short bristles or a small lamina.

A genus as well allied to *Angianthus*, as to *Phyllocalymma*, of both, however, exquisitely distinct by the form and quite abnormal position of the pappus.

21. *Pleuropappus phyllocalymmeus.*

On sterile plains of the Port Lincoln district.—*C. Wilhelmi.*

An annual erect branched glabrescent herb, with alternate linear leaves and terminal, solitary, golden-yellow glomerules.

22. *Ixiolena supina.*

Viscid-pubescent; stem procurrent, ascendent; leaves somewhat fleshy, lanceolate, blunt, tapering into a half-clasp-

ing base, on the margin somewhat revolute; scales of the hemispherical involucre appressed, linear-lanceolate, viscid, downy on the back, the interior ones terminated in a scarious lanceolate-ovate, smooth, appendix; achenes sulcate, cylindrical, glabrous, somewhat shining; bristles of the pappus about twenty.

Amongst rocks on the south coast of Kangaroo Island.

23. *Helichrysum adenophorum*.

Shrubby; branches and leaves glandulosely asperous; leaves linear, revolute, clasping with broader base; flower-heads solitary, terminal; scales of the involucre white, the exterior ones lanceolate, on the back and margin slightly downy, interior ones oblong-lanceolate, woolly on the apex of the glandulous semiterete stipes; achenes glabrous, sub-cylindrical, at the base attenuate, three times shorter than the pappus, which is serrate, and at the top dilated.

On barren elevations of Kangaroo Island.

24. *Helipterum præcox*.

(Sect. *Leucochrysum*.)

Stems annual; slightly woolly-pubescent, erect, simple, nearly to the top foliate; leaves glabrescent, narrow—linear, sessile, mucronulate, the uppermost scariose; receptacle short—conical, glabrous, scrobiculate; interior scales of the involucre white, lanceolate, acute, their stipes woolly at the apex; exterior scales subhyaline, gradually narrowed into a long acumen; achenes ovate, quite glabrous, rugulose; bristles of the pappus five to eight, yellowish-white, connate at the base, thence long-plumose.

Abundant on the less fertile plains and low ridges along the Avoca, Avon, Wimmera, and Richardson River.

25. *Helipterum exiguum*.

(Sect. *Leiochrysum*.)—*H. diffusum* Sond. in *Linnaea* xxx., p. 518. not Candolle.

Very dwarf, annual, slightly hairy; stems branched, foliate up to the top; leaves sessile, linear, mucronulate, the uppermost surrounding the solitary terminal flower-heads; receptacle glabrous, nearly flat, scrobiculate; interior scales of the involucre scarious, oval-oblong blunt, glabrous, flavescent, not spreading; exterior scales acutish, brown-red or greenish; achenes perfectly glabrous, dotted; bristles of the pappus nine to eleven, white, long-plumose.

In sandy stony declivities of the Grampians, the Serra and Victoria Ranges, near Gawlertown, and in the Bugle Ranges.

This pygmy of the genus, will be distinguished by exceedingly dwarf, branched and somewhat hairy stems; by heterogamous flower-heads, and perfectly glabrous fruits from that plant which De Candolle named *diffusum*.

26. *Senecio helichrysoides*.

Suffruticose, simple, white—tomentose; inferior leaves long-lanceolate, superior ones, sessile, linear-lanceolate, all acute, with entire revolute margin; cymes few-headed; involucre bell-shaped-cylindrical, about twice as long as the linear bracts, scales generally thirteen, on the back woolly-tomentose, tapering into a smooth reflexed acumen; flowers all tubulose, hardly exerted; achenes glabrous.

On low sandy loamy hills near the Wheal Barton mine.

LOBELIACEÆ.

27. *Laurentia platycalyx*.

Glabrous, creeping; leaves fleshy, oblong, or obovate-lanceolate, entire; peduncles axillary, one-flowered, generally of less than half the length of the leaves; calyx compressed, ovate, five-toothed; tube of the corolla very short; its laciniae nearly equal; faux glabrous.

In moist subsaline meadows from Port Phillip away to the westward.

This singular plant possesses scarcely the acridity and the milky juice, so universal in this order.

GOODENIACEÆ.

28. *Goodenia glauca*.

Erect, simple, smooth; axils bearded; leaves glaucous, lanceolate, acute, radical ones broader, all entire, gradually tapering into the base; peduncles one-flowered, axillary and terminal, solitary or twin, without bracteoles, longer than the upper leaves, at all times erect; segments of the calyx linear-subulate; corolla pale yellow; style villosely downy.

On the banks of the Murray and Avoca.

Allied to *G. elongata*.

EPACRIDÆ.

29. *Acrotriche prostrata*.

Branches weak, prostrate, pubescent; leaves crowded, divaricate, narrow-lanceolate, mucronate, very slightly on the ciliate margin recurved, beneath a little paler, nerved and glabrous, above scantily downy; spikes forming a corymbose head, growing out of the branches below the leaves; sepals half as long as the tube of the greenish corolla, oblong-ovate, pale, membranaceous, hairy on the summit.

On wooded low ridges from the Dandenong range to the Delatite river.

The nearest affinity is to *A. ramiflora*, and it produces likewise eatable fruits.

MYOPORINÆ.

Duttonia, a new genus.

Calyx deeply five-cleft, persistent, with spreading linear-subulate segments. Corolla inside densely bearded; its tube

short, cylindrical; faux ampliate; limb bilabiate; upper lip with two acute teeth, lower one tripartite. Stamens didynamous inclosed; the two longer filaments inserted near the base of the corolla, the two others very short affixed to the faux. Anthers divaricate. Style simple, glabrous, longer than the stamens. Stigma minute, undivided. Capsule oblong, slightly compressed, quite blunt, as long as the calyx, with two incompletely bilocellate cells. Seeds in the locell's solitary, linear.

30. *Duttonia gibbifolia*.

On stony ranges at the Mount Barker Creek in South Australia.—*Fischer*.

A shrub almost with the habit and leaves of *Eriostemon gracilis*. Leaves alternate, appressed, deciduous, beneath convex and gibbous from two small tubercules. Flowers axillary sessile solitary.

SANTALACEÆ.

31. *Leptomeria pungens*.

(*Sect. Oxymeria*.)

Branches and twigs terete, spinescent; leaves deciduous, narrow-lanceolate, somewhat channelled; bracteoles deciduous, navicular-rhomboid, acuminate, crenulate; flowers spicate, five-cleft; stigma five-rayed.

In the Mallee scrub along the Murray River, St. Vincent's and Spencer's Gulf, not rare.

Allied to *L. Lehmanni*. The fruit of a pleasant taste, not unlike acidulous grapes.

32. *Santalum persicarium*.

(*Sect. Fusanus*.)

Arborescent; leaves coriaceous, narrow-lanceolate, terminating into a short hook, glaucous, without veins; panicles

brachiate; bracteoles at length drooping, linear-subulate, recurved, of the length of the flowers; base of the filaments with fasciculated hair; drupe globose, dry, slightly rimose and foraminous.

In the Mallee scrub on the Murray river, Spencer's and St. Vincent's Gulf.

It differs from *Santalum Preissianum* in the evidently narrower and more glaucous leaves, in longer pedicels, in less deciduous narrower and longer bracteoles, in the bitter juiceless brownish pericarp, and in the larger putamen, with much less deep fissures and pores. The toasted bark from the root is used as food by the natives, and the infusion of it as tea.

33. *Exocarpus pendula*.

Arboreous; branches pendulous; leaves deciduous, linear-subulate, recurved at the summit; spikes long-pyramidate, stalked; their rachis puberulous; bracteoles nearly triangular as well as the five-parted calyx glabrous; pedicels rose-red; drupes indistinctly streaked, ovate-globose.

In the Mallee scrub on the Murray river, on Spencer's and St. Vincent's Gulf.

XEROTIDÆ.

34. *Xerotes dura*.

Scape very short; leaves rigid, opaque, long-linear, beneath convex, teethless at the apex, their margin scabrous, but at length smooth; flowers of both sexes in glomerate sessile whorls; clusters in a verticillate branched panicle; capsule even.

On barren localities, as well of the mountains as plains in South Australia.

GRAMINEÆ.

35. *Agrostis gelida*.

Erect, densely tufted, glabrous; leaves complicate-setaceous, radical ones generally of equal length with the stem; panicle closely contracted; bracteas navicular-lanceolate, acuminate, smooth, along the keel somewhat scabrous; lower one but little longer than the other, but considerably exceeding the flower; sepals awnless, glabrous, very thin, 5-nerved, crosely blunt, the lower one a little shorter.

On the top of the Cobboras mountains.

An alpine grass in some relation to *Agr. Falklandica*.

36. *Agrostis nivalis*.

Erect, densely tufted; leaves flat, short, broad, above scabrous, otherwise with stems and vaginæ smooth; panicle contracted, with imbricate branches; calyx very short-stalked, bearded at the base; bracteas somewhat acuminate, nearly equal to each other, glabrous, rough along the keel, as long as the calyx; exterior sepal smooth, 5-nerved; awn from below the summit, half as long as the sepal.

On the grassy top of Mount Buller.

37. *Stipa aristiglumis*.

Stems terete as well as its knots and sheaths glabrous and nearly even; leaves long, convolute, a little scabrous; ligule short, without fringes; panicle elongate, spreading, with fasciculate branches; awns scabrous, otherwise naked, flexuous, slightly bent in the middle, four or five times longer than the silky flower; bracteas green, glabrous, navicular-lanceolate, bristle-like-acuminate, ribbed; 3 of the ribs generally terminating in short awns; the upper bractea a

little shorter than the other and not much exceeding the length of the flower.

In bushy parts of the Murray Desert.

Allied to *Stipa læviculmis*.

38. *Aristida contorta*.

(*Sect. Arthratherum.*)

Stems erect, hardly branched; panicle racemose, contort; bracteas coloured, long tapering into a setaceous apex, the exterior one half as long as the other, equal in length to the calyx; inferior part of the arista closely twisted, half as long as the scabrous bristles, surpassing twice in length the calyx

On barren places on the Murray River.

Allied to *Aristida stipoides*.

39. *Aristida Behriana*.

(*Sect. Chaetaria.*)

Stems spreading, simple; panicle branched, condensed; bracteas tapering into a setaceous apex; the exterior one half as long as the other, reaching to the partition of the arista; bristles of the latter scabrous.

In dry loamy places near Port Adelaide, at the Barossa Ranges, the Murray River, and elsewhere in South Australia.

This grass approaches in its characters to *Aristida calycina*.

40. *Danthonia robusta*.

Stem high, robust; leaves flat, glabrous, short-bearded at the base; panicle contracted, lanceolate; spikelets generally four-flowered, shorter than the somewhat scabrous bracteas, exterior sepal villose to the middle; the upper series of hair touching the fissure; lateral divisions of the sepal tender membranaceous, half as long as the awn.

On stony declivities, in the higher parts of Mount Buller.

41. *Poa syrtica*.

Root fibrous, annual; leaves involute, setaceous, as well as ligules and sheaths glabrous; panicle strict, contracted; spikelets nearly sessile, seven to twelve flowered, oblong-linear; calyces blunt, densely imbricated; inferior sepal convex, five-nerved, glabrous.

Sandy shores of Spencer's and St. Vincent's Gulf.

42. *Poa ramigera*.

Stems long, diffuse, below distinctly branched; leaves glaucous, involute, setaceous, with the vaginæ and joints glabrous; ligule very short, ciliolate; panicle spreading, with solitary branches; spikelets lanceolate-linear, five to seven flowered; inferior sepal laxe, membranaceous, blunt, indistinctly three-nerved, as the upper one glabrous.

A robust grass, abundant in boggy places, subject to inundations, on the Murray River.

43. *Poa brizochloa*.

Leaves nearly flat, as well as the vaginæ glabrous, but often rough; joints even; ligule long, torn; panicle effuse; its branches single or twin, capillary; spikelets ovate, at length roundish; five-eight-flowered; inferior sepal five-nerved, erosely blunt, on the margin and on the back below the middle ciliate; upper sepal naked, short-bi-lobed.

On sandhills on the Murray River, Crystal Brook, Rocky River, Tanunda, and other places in South Australia.

44. *Panicum coenicolum*.

Stems erect; leaves flat, with their sheaths downy; ligule short, torn; branches of the panicle with remote flowers, at last spreading, the lower ones whorled, the upper ones solitary or twin; rachis somewhat scabrous, bearded at the axils; spikelets narrow-lanceolate, awnless, often solitary,

imperfectly silky-villose; exterior bractea ovate-lanceolate, blunt, glabrous, much shorter than the seven-nine-nerved interior one.

In places subject to inundations; towards Morunde, and near Cudnaka.

Similar to the following species, but the flowers nearly twice as large, and less downy.

45. *Panicum ammophilum*.

Stems spreading; leaves flat, short, with the joints of the stem velvet-downy; upper sheaths glabrous; branches of the panicle with remote flowers, at last spreading, the lower ones whorled, the upper solitary or twin; rachis somewhat scabrous, bearded at the axils; spikelets lanceolate, awnless, silky-villose, single or geminate; exterior bractea minute, lax, ovate—lanceolate, nearly blunt, glabrous, much shorter than the other.

On sandhills along the Murray River.

46. *Panicum convallium*.

Leaves below flat, as well as their sheaths hairy, rarely glabrous; joints of the stem villose; ligule very short, ciliate; panicle wide, perfectly expanded, with hardly flexuous fasciculate somewhat scabrous divided branches; axils short-bearded; spikelets solitary, shorter than the peduncle, glabrous, ovate-lanceolate, acute, awnless; exterior bractea trinerved, nearly heart-shaped, short pointed, half as long as the interior 5-nerved one.

On the banks of the Torrens and Gawler River, on the Murray River and along the Flinders Ranges.

47. *Panicum prolatum*.

Leaves flat, glaucous, as well as the joints and the sheaths smooth; ligule long, ciliate, torn; panicle wide, spreading,

with fasciculate, scabrous, hardly flexuous, divided branches; spikelets solitary, shorter than the peduncle, glabrous, ovate-lanceolate, acuminate, awnless; exterior bractea oblong-lanceolate, nearly blunt, tri-nerved, membranaceous on the margin, more than half as long as the interior one, which is seven-nerved.

On the Avoca, Broughton, and Leight river, as also at the foot of the Flinders ranges, in localities subject to inundations.

The flowers are almost twice as large as in *P. convallium*, to which this species bears much affinity.

48. *Panicum melananthum*.

Leaves broad, quite flat, as well as the joint of the stem smooth; sheaths and the very short ligules ciliate; panicle effuse, with capillary divided, somewhat scabrous, flexuous branches; spikelets glabrous, almost shorter than their peduncle, ovate-lanceolate, acute, awnless; exterior bractea ovate, somewhat acute, tri-nerved, hardly half as long as the interior one, which is five-nerved.

On wet, sandy, or gravelly banks of the Ovens and King River.

49. *Panicum lacunarium*.

Leaves flat, as well as the joints, and the sheaths smooth; ligule wanting; spikes appressed, mostly simple, the lower ones remote; rachis smooth; spikelets large, ovate, long-acuminate; exterior bractea round, trinerved, pointed, on the margin membranaceous, more than half as long as the interior one, which is five-nerved; nerves of the bracteas and of the sterile flower scabrous.

Around the Murray lagoons.

50. *Hierochloe submutica.*

Root creeping; stem together with its knots even; leaves flat, short, broad, linear, with their sheath somewhat scabrous; branches of the panicle spreading, the lower ones hardly drooping; pedicels somewhat hairy; bracteas with a nerve on both sides towards the base, lower one shorter than the flowers, the upper one a little broader and of the length of the calyx, their keel at last smooth; flowers indistinctly five to seven-nerved, all awnless or rarely the upper male one with a very short arista below the apex; margin of the female flower smooth, their back at the summit bearded; margin of the male flowers ciliated.

On the summits of the Cobboras mountains, at an elevation of 6,000 ft.

This elegant and nutritious grass luxuriated on the limits of eternal snow, like other *Hierochloas* of the arctic and alpine regions.

Its nearest affinity is with *Hier. fragrans* from North America.

 V.

ON THE DETERIORATION OF GRAIN AND FLOUR.

 BY JOHN MAUND, M.D.

 READ 27TH NOVEMBER, 1854.

It has occurred to me, Mr. President and Gentlemen, that an enumeration of the chemical changes, and the best means of preventing such, that often take place in grain and their products, flour, meal, &c., during their transmission from